

What is claimed is:

1. A photochromic polyurethane film comprising:

a polyurethane film having a thickness in the range of about 10 μm to 250 μm ;

at least one organic photochromic compound;

a stabilizer system having two hindered amine light stabilizers and one phenolic antioxidant;

said photochromic compound having a concentration of approximately 0.1% to 6% by weight;

said stabilizer system having a concentration of approximately 1% to 9% by weight;

said stabilizer system having a formulation to provide at least a 40% of improvement in the light fatigue resistance of the photochromic polyurethane film over a film not having said formulation; and

said stabilizer system having a formulation to provide a change of less than 6 units in b^* of CIELAB at the clear state for said photochromic polyurethane film.

2. A photochromic polyurethane film of Claim 1 wherein said stabilizer system comprises:

(a) 60% to 90%, by weight, two hindered amine light stabilizers being selected from the group consisting of bis(1,2,2,6,6-pentamethyl-4-piperidiny)-[[3,5-bis(1,1-dimethylethyl)]-[4-hydroxyphenyl]methyl]butyl malonate; Bis(1,2,2,6,6-pentamethyl-4-piperidiny) sebacate; methyl (1,2,2,6,6-pentamethyl-4-piperidiny) sebacate; bis(2,2,6,6-tetramethyl-4-piperidiny)decanedioate; 1-acetyl-4-(3-dodecyl-2,5-dioxo-1-pyrrolidiny)-2,2,6,6-tetramethyl-piperidine and N-unsubstituted HALS compounds, N-methylated HALS compounds.

(b) 10% to 40%, by weight, one phenolic antioxidant being selected from the group consisting of tetrakis-(methylene-3-(3',5'-di-*t*-butyl-4'-hydroxyphenyl) propionate]methane; 1,3,5-trimethyl-2,4,6-tris(3,5-di-*tert*-butyl-4'-hydroxybenzyl)benzene; 1,3,5-tris(3,5-di-*tert*-butyl-4'-hydroxybenzyl)isocyanurate; 3,5-di-*tert*-butyl-4-hydroxyhydrocinnamic triester with 1,3,5-tris(2-hydroxyethyl)s-triazine-2,4,6-(1H,3H,5H)-trione; 1,3,5-tris(4-*tert*-butyl-3-hydroxy-2,6-dimethylbenzyl)s-triazine-2,4,6-(1H, 3H,5H)-trione;

3. A photochromic polyurethane film of claim 2 wherein said two hindered amine light stabilizers are bis(1,2,2,6,6-pentamethyl-4-piperidiny)-[[3,5-bis(1,1-dimethylethyl)]-[4-hydroxyphenyl]methyl]butyl malonate and Bis(1,2,2,6,6-pentamethyl-4-piperidiny) sebacate – methyl (1,2,2,6,6-pentamethyl-4-piperidiny) sebacate , and said phenolic antioxidant is tetrakis-(methylene-3-(3',5'-di-*t*-butyl-4'-hydroxyphenyl) propionate]methane.

4. A photochromic polyurethane film of claim 1 wherein said photochromic compound is a photochromic naphthopyran.

5. A photochromic polyurethane film of claim 1 wherein said polyurethane is an aliphatic polyurethane.

6. A photochromic polyurethane film of claim 1 wherein said polyurethane is an aliphatic polyester polyurethane.

7. A photochromic polyurethane film of claim 1 wherein the film is laminated.

8. A photochromic polyurethane film of claim 7 wherein the laminate is incorporated into an eyewear lens.